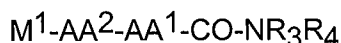


AMENDMENTS TO THE CLAIMS

Claims 1-4 are pending in the application. Changes in the claims are shown by strikethrough ("—") or double brackets ("[]") for deleted language and underlining ("___") for added language.

1. (Currently amended) A method for treating axonal degeneration of the peripheral nervous system of a patient comprising:

administering to ~~[[a]]~~ the patient a compound of the formula:



a pharmaceutically acceptable salt or prodrug thereof, wherein

M¹ is selected from the group consisting of H, NH₂-CO-, NH₂-CS-, NH₂-SO₂-, X-NH-CO-, X₂N-CO-, X-NH-CS-, X₂N-CS-, X-NH-SO₂-, X₂N-SO₂-, X-CO-, X-CS-, X-, Y-SO₂-, Y-O-CO-, Y-O-CS-, morpholine-CO-, and biotinyl;

X is selected from the group consisting of H, C₁₋₁₀ alkyl, C₃₋₁₅ cyclized alkyl, C₁₋₁₀ fluoroalkyl, C₁₋₁₀ alkyl substituted with J, C₁₋₁₀ fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C₁₋₁₀ fluoroalkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with two attached phenyl groups, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with two attached phenyl groups substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group, and C₁₋₁₀ alkyl monosubstituted with M²;

Y is selected from the group consisting of C₁₋₁₀ alkyl, C₃₋₁₅ cyclized alkyl, C₁₋₁₀ fluoroalkyl, C₁₋₁₀ alkyl substituted with J, C₁₋₁₀ fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C₁₋₁₀ fluoroalkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with two attached

phenyl groups, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with two attached phenyl groups substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group, M², and C₁₋₁₀ alkyl monosubstituted with M²;

M² is selected from the group consisting of 2-furyl, 2-tetrahydrofuryl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-pyrazinyl, 2-quinolinyl, 1-tetrahydroquinolinyl, 1-isoquinolinyl, 2-tetrahydroisoquinolinyl, and -N(CH₂CH₂)₂O;

J is selected from the group consisting of halogen, CO₂H, OH, CN, NO₂, NH₂, C₁₋₁₀ alkoxy, C₁₋₁₀ alkylamino, C₂₋₁₂ dialkylamino, C₁₋₁₀ alkyl-O-CO-, C₁₋₁₀ alkyl-O-CO-NH-, C₁₋₁₀ alkyl-S-, and -N(CH₂CH₂)₂O;

K is selected from the group consisting of halogen, C₁₋₁₀ alkyl, C₁₋₁₀ perfluoroalkyl, C₁₋₁₀ alkoxy, phenoxy, NO₂, CN, OH, CO₂H, amino, C₁₋₁₀ alkylamino, C₂₋₁₂ dialkylamino, C₁₋₁₀ acyl, and C₁₋₁₀ alkoxy-CO-, and C₁₋₁₀ alkyl-S-, and -N(CH₂CH₂)₂O;

AA¹ and AA² side chain blocked or unblocked amino acids with the L configuration, D configuration, or no chirality at the $[\square]\alpha$ -carbon selected from the group consisting of alanine, valine, leucine, isoleucine, proline, methionine, methionine sulfoxide, phenylalanine, tryptophan, glycine, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, histidine, phenylglycine, beta-alanine, norleucine, norvaline, alpha-aminobutanoic acid, epsilon-aminocaproic acid, citrulline, hydroxyproline, ornithine, homoarginine, sarcosine, indoline 2-carboxylic acid, 2-azetidinecarboxylic acid, pipercolinic acid (2-piperidine carboxylic acid), O-methylserine, O-ethylserine, S-methylcysteine, S-ethylcysteine, S-benzylcysteine, NH₂-CH(CH₂CH₂Et)₂-CO₂H, alpha-aminoheptanoic acid, NH₂-CH(CH₂-1-naphthyl)-CO₂H, NH₂-CH(CH₂-2-naphthyl)-CO₂H, NH₂-CH(CH₂-cyclohexyl)-CO₂H, NH₂-CH(CH₂-cyclopentyl)-CO₂H, NH₂-CH(CH₂-cyclobutyl)-CO₂H, NH₂-CH(CH₂-cyclopropyl)-CO₂H, trifluoroleucine, 4-fluorophenylalanine, lysine substituted on the epsilon nitrogen with a biotinyl group, hexafluoroleucine, and NH₂-CHR²-CO₂H;

R² is selected from the group consisting of C₁₋₁₀ branched and unbranched alkyl, C₁₋₁₀ branched and unbranched cyclized alkyl, and C₁₋₁₀ branched and unbranched fluoroalkyl;

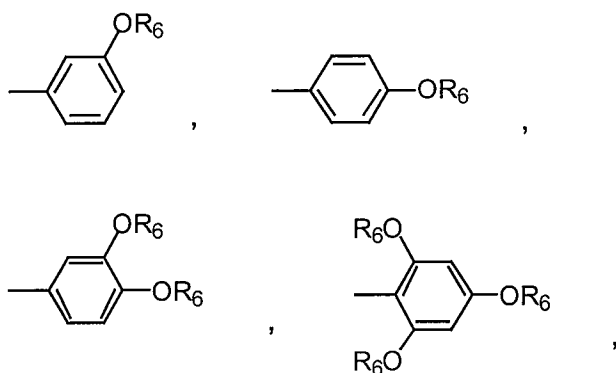
R³ and R⁴ are selected independently from the group consisting of

a) H, C₁₋₂₀ alkyl, C₁₋₂₀ cyclized alkyl, C₁₋₂₀ alkyl with a phenyl group attached to the C₁₋₂₀ alkyl, C₁₋₂₀ cyclized alkyl with an attached phenyl group, C₁₋₂₀ alkyl with an attached phenyl group monosubstituted with K, C₁₋₂₀ alkyl with an attached phenyl group disubstituted with K, C₁₋₂₀ alkyl with an attached phenyl group trisubstituted with K, C₁₋₂₀ cyclized alkyl with an attached phenyl group monosubstituted with K, C₁₋₁₀ alkyl with a morpholine [-N(CH₂CH₂)O] ring attached through nitrogen to the alkyl, C₁₋₁₀ alkyl with a piperidine ring attached through nitrogen to the alkyl, C₁₋₁₀ alkyl with a pyrrolidine ring attached through nitrogen to the alkyl, C₁₋₂₀ alkyl with an OH group attached to the alkyl, -CH₂CH₂OCH₂CH₂OH, C₁₋₁₀ with an attached 4-pyridyl group, C₁₋₁₀ with an attached 3-pyridyl group, C₁₋₁₀ with an attached 2-pyridyl group, C₁₋₁₀ with an attached cyclohexyl group, -NH-CH₂CH₂-(4-hydroxyphenyl), -NH-CH₂CH₂-(3-indolyl);

b) -CH₂CH(OH)-R⁵, and

c) -(CH₂)_n-R⁷;

R⁵ is selected from the group consisting of phenyl, phenyl monosubstituted with J, phenyl disubstituted with J, phenyl trisubstituted with J, pentafluorophenyl,

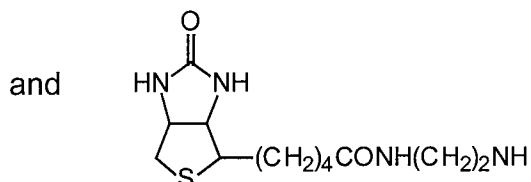
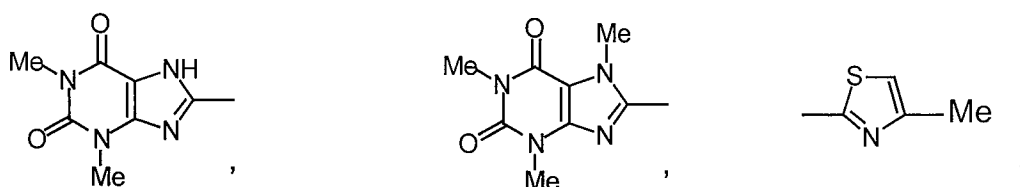
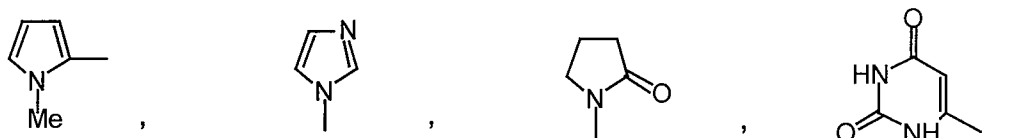
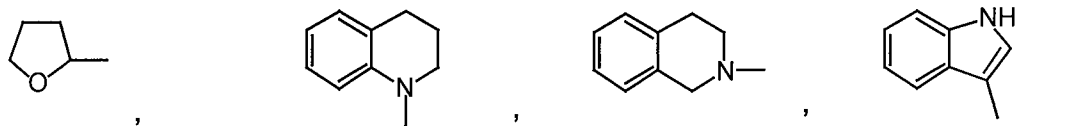


1-naphthyl, 1-naphthyl monosubstituted with J, 1-naphthyl disubstituted with J, 2-naphthyl, 2-naphthyl monosubstituted with J, 2-naphthyl disubstituted with J, 2-pyridyl, 2-quinoliny, and 1-isoquinoliny;

R^6 is selected from the group consisting of C₁₋₄ alkyl, C₁₋₄ alkyl substituted with phenyl, phenyl, and phenyl substituted with J;

n = 1-6;

R^7 is selected from the group consisting of 2-furyl, 2-furyl monosubstituted with J, 2-pyridyl, 2-pyridyl monosubstituted with J, 3-pyridyl, 3-pyridyl monosubstituted with J, 4-pyridyl, 4-pyridyl monosubstituted with J, 2-quinoliny, 2-quinoliny monosubstituted with J, 1-isoquinoliny, 1-isoquinoliny monosubstituted with J,



in an amount sufficient to ~~inhibit~~ treat axonal degeneration.

2. (Currently amended) The method of claim 1, wherein the axonal degeneration of the peripheral nervous system is related to at least one of the following conditions:

idiopathic peripheral neuropathies[.]; peripheral neuropathies due to genetic mutations[.]; peripheral neuropathies associated with uremia, rheumatologic diseases, liver diseases, and infections[.]; and axonal degeneration secondary to primary demyelinating disorders, inflammatory demyelinating neuropathies, multiple sclerosis, and chronic spinal cord degenerations.

3. (Original) A method of claim 1, wherein:

M¹ is selected from the group consisting of X-NH-CO- and Y-O-CO-;

AA² is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, and alpha-aminobutanoic acid;

AA² is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, alpha-aminobutanoic acid, norvaline, and phenylalanine;

X is selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group;

Y is selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group.

4. (Original) The method of claim 1, wherein the compound is selected from the group consisting of:

Z-Leu-Nva-CH₂-2-pyridyl,

Z-Leu-Abu-CH₂CH(OH)C₆F₅,

Z-Leu-Phe-(CH₂)₂Ph,

Z-Leu-Abu-CH₂CH(OH)C₆H₄-3-OC₆H₄(3-CF₃),
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OCH₂Ph),
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OPh),
 Z-Leu-Phe-CH₂-2-quinolinyl,
 Z-Leu-Abu-(CH₂)₂C₆H₄(3-OCH₃),
 Z-Leu-Abu-(CH₂)₂C₆H₄(4-OCH₃),
 Z-Leu-Abu-CH₂CH(OH)-1-C₁₀H₇,
 Z-Leu-Phe-(CH₂)₃-4-morpholinyl,
 Z-Leu-Abu-(CH₂)₂C₆H₄(2-OCH₃),
 Z-Leu-Abu-CH₂-2-quinolinyl,
 Z-Leu-Abu-(CH₂)₃-4-morpholinyl (AK295),
 Z-Leu-Abu-(CH₂)₂-2-(N-methylpyrrole),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄-3-OC₆H₄(3-CF₃),
 Z-Leu-Abu-(CH₂)₂C₆H₅,
 Z-Leu-Phe-Et,
 Z-Leu-Abu-CH₂CH(OC₂H₅)₂,
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-OPh),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-OCH₂Ph),
 Z-Leu-Abu-CH₂C₆H₅,
 Z-Leu-Phe-(CH₂)₂NH-biotinyl,
 Z-Leu-Phe-(CH₂)₃-2-tetrahydroisoquinolinyl,
 Z-Leu-Abu-CH₂CH(OH)C₆H₃(3,4-(OCH₂Ph)₂),
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OCH₃),
 Z-Leu-Nva-(CH₂)₃-4-morpholinyl,
 Z-Leu-Abu-CH₂-1-isoquinolinyl,
 Z-Leu-Abu-Et,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄-3-OC₆H₃(3,4-Cl₂),
 Z-Leu-Abu-Me,
 Z-Leu-Abu-(CH₂)₃-1-imidazolyl,
 Z-Leu-Abu-(CH₂)₂-3-indolyl,

Z-Leu-Abu-(CH₂)₃-2-tetrahydroisoquinoliny,
 Z-Leu-Abu-CH₂-2-tetrahydrofuryl,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-N(CH₃)₂),
 Z-Leu-Phe-*n*-Pr,
 Z-Leu-Abu-CH₂CH(OH)-2-C₁₀H₇,
 Z-Leu-Phe-Me,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(3-CF₃),
 Z-Leu-Abu-(CH₂)₃-1-tetrahydroquinoliny,
 Z-Leu-Abu-(CH₂)₂C₆H₄(4-OH),
 Z-Leu-Abu-CH₂CH(OH)C₆H₂(3,4,5-(OCH₃)₃),
 Z-Leu-Phe-(CH₂)₃-1-tetrahydroquinoliny,
 Z-Leu-Abu-(CH₂)₂-2-pyridyl,
 Z-Leu-Abu-CH₂-C₆H₇(1,3,3-(CH₃)₃-5-OH),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(3-CF₃),
 Z-Leu-Phe-CH₂CH(OH)C₆H₃(3,4-(OCH₂Ph)₂),
 Z-Leu-Abu-(CH₂)₅OH,
 Z-Leu-Abu-CH₂CH(OCH₃)₂,
 Z-Leu-Phe-CH₂CH(OH)C₆H₄-3-OC₆H₃(3,4-Cl₂),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(3-OPh),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-N(CH₃)₂),
 Z-Leu-Abu-CH₂-2-pyridyl,
 Z-Leu-Abu-(CH₂)₂O(CH₂)₂OH,
 Z-Leu-Phe-CH₂-2-pyridyl,
 Z-Leu-Abu-(CH₂)₂NH-biotinyl,
 Z-Leu-Abu-CH₂-C₆H₁₁,
 Z-Leu-Phe-CH₂CH(OH)C₆F₅,
 Z-Leu-Abu-CH₂-2-furyl,
 Z-Leu-Abu-(CH₂)₃C₆H₅,
 Z-Leu-Abu-(CH₂)₂OH,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(3-OPh),

Z-Leu-Abu-(CH₂)₂-4-morpholinyl,
 Z-Leu-Abu-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂-4-pyridyl,
 Z-Leu-Abu-(CH₂)₃-1-pyrrolidine-2-one,
 Z-Leu-Phe-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂C₆H₃(3,5-(OCH₃)₂),
 Z-Leu-Nva-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂-8-caffeinyl,
 Z-Leu-Abu-*n*-Pr,
 Z-Leu-Abu-CH₂-3-pyridyl, and
 Z-Leu-Phe-CH₂Ph.

5-22. (Cancelled)

23. (New) The method of claim 1, wherein the compound is Z-Leu-Abu-(CH₂)₃-4-morpholinyl.
24. (New) The method of claim 2, wherein the compound is Z-Leu-Abu-(CH₂)₃-4-morpholinyl.
25. (New) The method of claim 1, wherein the axonal degeneration is chemically-induced axonal degeneration.
26. (New) A method for treating axonal degeneration of the peripheral nervous system of a mammalian host comprising:
 administering to the mammalian host a compound of the formula:

$$M^1-AA^2-AA^1-CO-NR_3R_4$$

a pharmaceutically acceptable salt or prodrug thereof, wherein

M^1 is selected from the group consisting of H, NH₂-CO-, NH₂-CS-, NH₂-SO₂-,
 X-NH-CO-, X₂N-CO-, X-NH-CS-, X₂N-CS-, X-NH-SO₂-, X₂N-SO₂-, X-CO-, X-CS-, X-,
 Y-SO₂-, Y-O-CO-, Y-O-CS-, morpholine-CO-, and biotinyl;

X is selected from the group consisting of H, C₁₋₁₀ alkyl, C₃₋₁₅ cyclized alkyl, C₁₋₁₀ fluoroalkyl, C₁₋₁₀ alkyl substituted with J, C₁₋₁₀ fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C₁₋₁₀ fluoroalkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with two attached phenyl groups, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with two attached phenyl groups substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group, and C₁₋₁₀ alkyl monosubstituted with M²;

Y is selected from the group consisting of C₁₋₁₀ alkyl, C₃₋₁₅ cyclized alkyl, C₁₋₁₀ fluoroalkyl, C₁₋₁₀ alkyl substituted with J, C₁₋₁₀ fluoroalkyl substituted with J, 1-admantyl, 9-fluorenyl, phenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, naphthyl, naphthyl monosubstituted with K, naphthyl disubstituted with K, naphthyl trisubstituted with K, C₁₋₁₀ fluoroalkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with two attached phenyl groups, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with two attached phenyl groups substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group, M², and C₁₋₁₀ alkyl monosubstituted with M²;

M² is selected from the group consisting of 2-furyl, 2-tetrahydrofuryl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-pyrazinyl, 2-quinoliny, 1-tetrahydroquinoliny, 1-isoquinoliny, 2-tetrahydroisoquinoliny, and -N(CH₂CH₂)₂O;

J is selected from the group consisting of halogen, CO₂H, OH, CN, NO₂, NH₂, C₁₋₁₀ alkoxy, C₁₋₁₀ alkylamino, C₂₋₁₂ dialkylamino, C₁₋₁₀ alkyl-O-CO-, C₁₋₁₀ alkyl-O-CO-NH-, C₁₋₁₀ alkyl-S-, and -N(CH₂CH₂)₂O;

K is selected from the group consisting of halogen, C₁₋₁₀ alkyl, C₁₋₁₀ perfluoroalkyl, C₁₋₁₀ alkoxy, phenoxy, NO₂, CN, OH, CO₂H, amino, C₁₋₁₀ alkylamino,

C₂₋₁₂ dialkylamino, C₁₋₁₀ acyl, and C₁₋₁₀ alkoxy-CO-, and C₁₋₁₀ alkyl-S-, and -N(CH₂CH₂)₂O;

AA¹ and AA² side chain blocked or unblocked amino acids with the L configuration, D configuration, or no chirality at the α -carbon selected from the group consisting of alanine, valine, leucine, isoleucine, proline, methionine, methionine sulfoxide, phenylalanine, tryptophan, glycine, serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, histidine, phenylglycine, beta-alanine, norleucine, norvaline, alpha-aminobutanoic acid, epsilon-aminocaproic acid, citrulline, hydroxyproline, ornithine, homoarginine, sarcosine, indoline 2-carboxylic acid, 2-azetidinecarboxylic acid, pipercolinic acid (2-piperidine carboxylic acid), O-methylserine, O-ethylserine, S-methylcysteine, S-ethylcysteine, S-benzylcysteine, NH₂-CH(CH₂CHEt₂)-CO₂H, alpha-aminoheptanoic acid, NH₂-CH(CH₂-1-naphthyl)-CO₂H, NH₂-CH(CH₂-2-naphthyl)-CO₂H, NH₂-CH(CH₂-cyclohexyl)-CO₂H, NH₂-CH(CH₂-cyclopentyl)-CO₂H, NH₂-CH(CH₂-cyclobutyl)-CO₂H, NH₂-CH(CH₂-cyclopropyl)-CO₂H, trifluoroleucine, 4-fluorophenylalanine, lysine substituted on the epsilon nitrogen with a biotinyl group, hexafluoroleucine, and NH₂-CHR²-CO₂H;

R² is selected from the group consisting of C₁₋₁₀ branched and unbranched alkyl, C₁₋₁₀ branched and unbranched cyclized alkyl, and C₁₋₁₀ branched and unbranched fluoroalkyl;

R³ and R⁴ are selected independently from the group consisting of

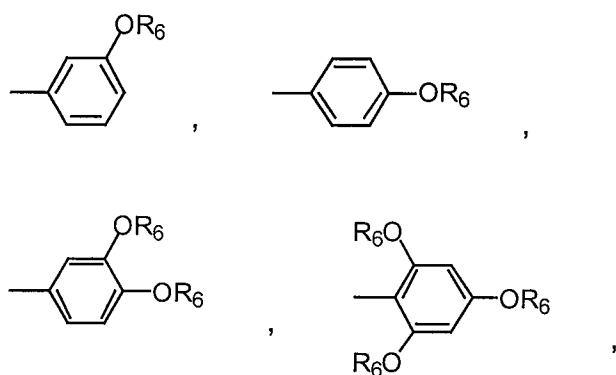
a) H, C₁₋₂₀ alkyl, C₁₋₂₀ cyclized alkyl, C₁₋₂₀ alkyl with a phenyl group attached to the C₁₋₂₀ alkyl, C₁₋₂₀ cyclized alkyl with an attached phenyl group, C₁₋₂₀ alkyl with an attached phenyl group monosubstituted with K, C₁₋₂₀ alkyl with an attached phenyl group disubstituted with K, C₁₋₂₀ alkyl with an attached phenyl group trisubstituted with K, C₁₋₂₀ cyclized alkyl with an attached phenyl group monosubstituted with K, C₁₋₁₀ alkyl with a morpholine [-N(CH₂CH₂)O] ring attached through nitrogen to the alkyl, C₁₋₁₀ alkyl with a piperidine ring attached through nitrogen to the alkyl, C₁₋₁₀ alkyl with a pyrrolidine ring attached through nitrogen to the alkyl, C₁₋₂₀ alkyl with an OH group attached to the alkyl, -CH₂CH₂OCH₂CH₂OH, C₁₋₁₀ with an attached 4-pyridyl group,

C₁₋₁₀ with an attached 3-pyridyl group, C₁₋₁₀ with an attached 2-pyridyl group, C₁₋₁₀ with an attached cyclohexyl group, -NH-CH₂CH₂-(4-hydroxyphenyl), -NH-CH₂CH₂-(3-indolyl);

b) -CH₂CH(OH)-R⁵, and

c) -(CH₂)_n-R⁷;

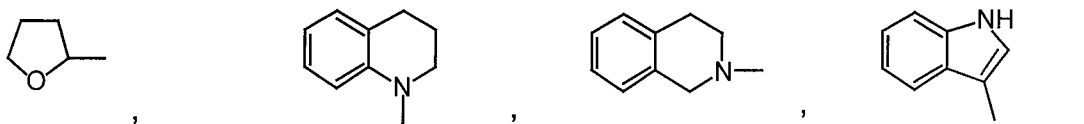
R⁵ is selected from the group consisting of phenyl, phenyl monosubstituted with J, phenyl disubstituted with J, phenyl trisubstituted with J, pentafluorophenyl,

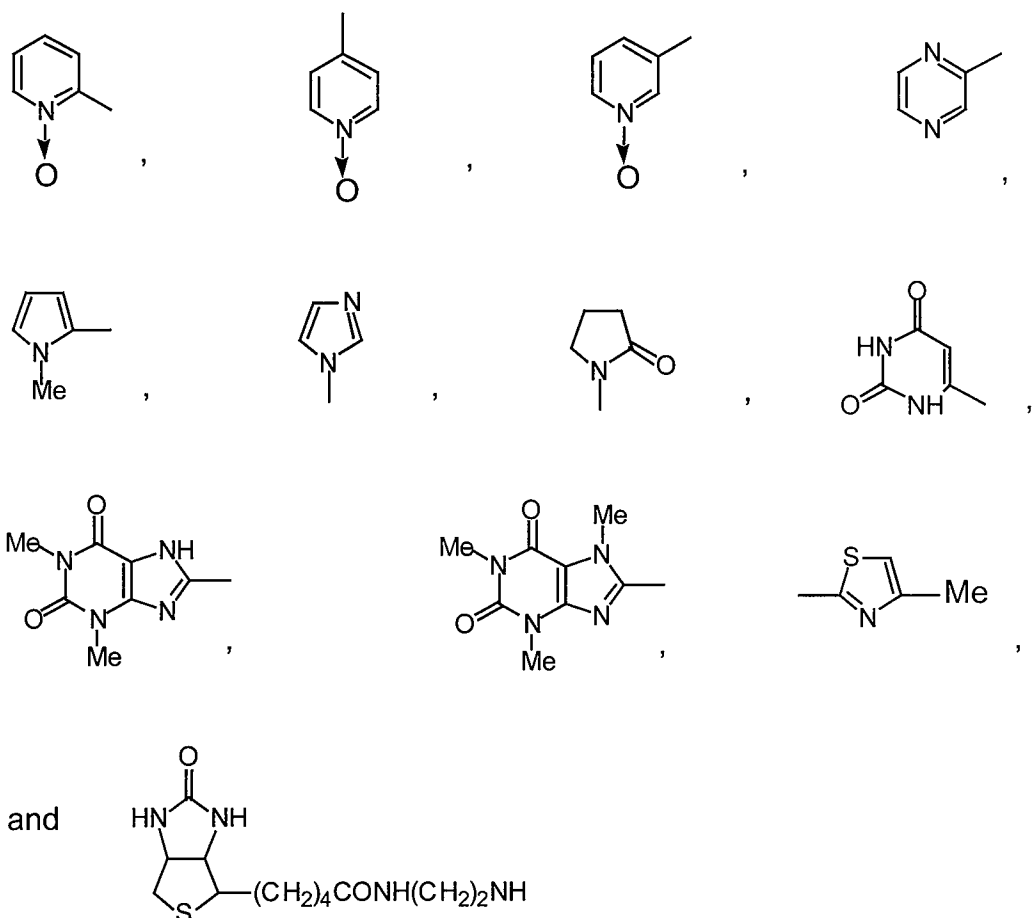


1-naphthyl, 1-naphthyl monosubstituted with J, 1-naphthyl disubstituted with J, 2-naphthyl, 2-naphthyl monosubstituted with J, 2-naphthyl disubstituted with J, 2-pyridyl, 2-quinoliny, and 1-isoquinoliny;

R⁶ is selected from the group consisting of C₁₋₄ alkyl, C₁₋₄ alkyl substituted with phenyl, phenyl, and phenyl substituted with J;
n = 1-6;

R⁷ is selected from the group consisting of 2-furyl, 2-furyl monosubstituted with J, 2-pyridyl, 2-pyridyl monosubstituted with J, 3-pyridyl, 3-pyridyl monosubstituted with J, 4-pyridyl, 4-pyridyl monosubstituted with J, 2-quinoliny, 2-quinoliny monosubstituted with J, 1-isoquinoliny, 1-isoquinoliny monosubstituted with J,





in an amount sufficient to treat axonal degeneration.

27. (New) The method of claim 26, wherein the axonal degeneration of the peripheral nervous system is related to at least one of the following conditions: idiopathic peripheral neuropathies; peripheral neuropathies due to genetic mutations; peripheral neuropathies associated with uremia, rheumatologic diseases, liver diseases, and infections; and axonal degeneration secondary to primary demyelinating disorders, inflammatory demyelinating neuropathies, multiple sclerosis, and chronic spinal cord degenerations.

28. (New) A method of claim 26, wherein:

M^1 is selected from the group consisting of $X-NH-CO-$ and $Y-O-CO-$;

AA^2 is selected from the group from the group consisting of leucine, valine, isoleucine, alanine, and alpha-aminobutanoic acid;

AA² is selected from the group consisting of leucine, valine, isoleucine, alanine, alpha-aminobutanoic acid, norvaline, and phenylalanine;

X is selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group;

Y is selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkyl with an attached phenyl group, C₁₋₁₀ alkyl with an attached phenyl group substituted with K, C₁₋₁₀ alkyl with an attached naphthyl group, C₁₋₁₀ alkyl with an attached naphthyl group substituted with K, C₁₋₁₀ alkyl with an attached phenoxy group, and C₁₋₁₀ alkyl with an attached phenoxy group substituted with K on the phenoxy group.

29. (New) The method of claim 26, wherein the compound is selected from the group consisting of:

Z-Leu-Nva-CH₂-2-pyridyl,

Z-Leu-Abu-CH₂CH(OH)C₆F₅,

Z-Leu-Phe-(CH₂)₂Ph,

Z-Leu-Abu-CH₂CH(OH)C₆H₄-3-OC₆H₄(3-CF₃),

Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OCH₂Ph),

Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OPh),

Z-Leu-Phe-CH₂-2-quinolinyl,

Z-Leu-Abu-(CH₂)₂C₆H₄(3-OCH₃),

Z-Leu-Abu-(CH₂)₂C₆H₄(4-OCH₃),

Z-Leu-Abu-CH₂CH(OH)-1-C₁₀H₇,

Z-Leu-Phe-(CH₂)₃-4-morpholinyl,

Z-Leu-Abu-(CH₂)₂C₆H₄(2-OCH₃),

Z-Leu-Abu-CH₂-2-quinolinyl,

Z-Leu-Abu-(CH₂)₃-4-morpholinyl (AK295),

Z-Leu-Abu-(CH₂)₂-2-(N-methylpyrrole),

Z-Leu-Phe-CH₂CH(OH)C₆H₄-3-OC₆H₄(3-CF₃),
 Z-Leu-Abu-(CH₂)₂C₆H₅,
 Z-Leu-Phe-Et,
 Z-Leu-Abu-CH₂CH(OC₂H₅)₂,
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-OPh),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-OCH₂Ph),
 Z-Leu-Abu-CH₂C₆H₅,
 Z-Leu-Phe-(CH₂)₂NH-biotinyl,
 Z-Leu-Phe-(CH₂)₃-2-tetrahydroisoquinolinyll,
 Z-Leu-Abu-CH₂CH(OH)C₆H₃(3,4-(OCH₂Ph)₂),
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-OCH₃),
 Z-Leu-Nva-(CH₂)₃-4-morpholinyl,
 Z-Leu-Abu-CH₂-1-isoquinolinyll,
 Z-Leu-Abu-Et,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄-3-OC₆H₃(3,4-Cl₂),
 Z-Leu-Abu-Me,
 Z-Leu-Abu-(CH₂)₃-1-imidazolyl,
 Z-Leu-Abu-(CH₂)₂-3-indolyl,
 Z-Leu-Abu-(CH₂)₃-2-tetrahydroisoquinolinyll,
 Z-Leu-Abu-CH₂-2-tetrahydrofuryll,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(4-N(CH₃)₂),
 Z-Leu-Phe-*n*-Pr,
 Z-Leu-Abu-CH₂CH(OH)-2-C₁₀H₇,
 Z-Leu-Phe-Me,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(3-CF₃),
 Z-Leu-Abu-(CH₂)₃-1-tetrahydroquinolinyll,
 Z-Leu-Abu-(CH₂)₂C₆H₄(4-OH),
 Z-Leu-Abu-CH₂CH(OH)C₆H₂(3,4,5-(OCH₃)₃),
 Z-Leu-Phe-(CH₂)₃-1-tetrahydroquinolinyll,
 Z-Leu-Abu-(CH₂)₂-2-pyridyl,

Z-Leu-Abu-CH₂-C₆H₇(1,3,3-(CH₃)₃-5-OH),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(3-CF₃),
 Z-Leu-Phe-CH₂CH(OH)C₆H₃(3,4-(OCH₂Ph)₂),
 Z-Leu-Abu-(CH₂)₅OH,
 Z-Leu-Abu-CH₂CH(OCH₃)₂,
 Z-Leu-Phe-CH₂CH(OH)C₆H₄-3-OC₆H₃(3,4-Cl₂),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(3-OPh),
 Z-Leu-Phe-CH₂CH(OH)C₆H₄(4-N(CH₃)₂),
 Z-Leu-Abu-CH₂-2-pyridyl,
 Z-Leu-Abu-(CH₂)₂O(CH₂)₂OH,
 Z-Leu-Phe-CH₂-2-pyridyl,
 Z-Leu-Abu-(CH₂)₂NH-biotinyl,
 Z-Leu-Abu-CH₂-C₆H₁₁,
 Z-Leu-Phe-CH₂CH(OH)C₆F₅,
 Z-Leu-Abu-CH₂-2-furyl,
 Z-Leu-Abu-(CH₂)₃C₆H₅,
 Z-Leu-Abu-(CH₂)₂OH,
 Z-Leu-Abu-CH₂CH(OH)C₆H₄(3-OPh),
 Z-Leu-Abu-(CH₂)₂-4-morpholinyl,
 Z-Leu-Abu-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂-4-pyridyl,
 Z-Leu-Abu-(CH₂)₃-1-pyrrolidine-2-one,
 Z-Leu-Phe-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂C₆H₃(3,5-(OCH₃)₂),
 Z-Leu-Nva-CH₂CH(OH)Ph,
 Z-Leu-Abu-CH₂-8-caffeinylyl,
 Z-Leu-Abu-*n*-Pr,
 Z-Leu-Abu-CH₂-3-pyridyl, and
 Z-Leu-Phe-CH₂Ph.

30. (New) The method of claim 26, wherein the compound is Z-Leu-Abu-(CH₂)₃-4-morpholinyl.
31. (New) The method of claim 27, wherein the compound is Z-Leu-Abu-(CH₂)₃-4-morpholinyl.
32. (New) The method of claim 26, wherein the axonal degeneration is chemically-induced axonal degeneration.